

CALIFORNIA DEPARTMENT OF FISH AND GAME

**Take Report for Anadromous Fish Research and Monitoring Activities
Authorized Under the Endangered Species Act Section 4(d) Rule Research Limit
for the period January 1, 2007 to December 31, 2007**

Note: All items marked with an asterisk () are REQUIRED*

1 * Project Number: Project Title:

69	Feather River Fisheries Research – Spring Chinook Telemetry Study
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2 * Principal Investigator (PI) or Contact Person:

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3 * Research timeframe: *Note: for 4(d) authorization, the start date and end date must be within the same calendar year.*

Start Date: **5/3/2007** **2007** **End Date:** **12/31/2007** **2007**

4 * Please place an "X" in the box next to EACH statement in this section that applies to your project.

<input checked="" type="checkbox"/>	This research or monitoring project is ongoing .
<input type="checkbox"/>	The project was not implemented during Calendar Year 2007.
<input type="checkbox"/>	A Section 10 Permit was obtained for this project during 2007.
	Please enter your project's Section 10 Permit Number here ►►►►► <input type="text"/>
	Use this form to report your project's take activity under this 4(d) authorization only

5 * Time of year and frequency of sampling: (e.g., January through June; 3 days per week)

For Chinook: tagged May through June, one day per week;
For steelhead: angled and tagged April through May, up to twice a week;
Both fish species were tracked May through August, one day per week and from October through December, two days per month.

6 * Indicate river basin(s) sampled, and approximate latitude and longitude of sampling sites:

Specify Level 4 USGS Hydrologic Unit Codes (HUCs) if known; also see attachment named "Listed ESUs/DPSs, By Location" for general areas.

Lower Feather River from the Fish Barrier Dam near the Feather River Fish Hatchery (N 390 31' W 1210 33') to the confluence with the Sacramento River at Verona (N 380 77' W 1210 59').

7 * Briefly describe the techniques and methods used during research and monitoring activities:

1. Spring-run Chinook:
In order to assess patterns of holding habitat use for adult Chinook salmon which up-migrate in the spring, 45 adult salmon were captured and implanted with a radio tag. Beginning in May, adult Chinook were obtained through the Feather River Hatchery Fish Ladder Investigation, Project No. 82, conducted by Principal Investigators J. Kindopp (CDWR), R. Kurth (CDWR), and A. Kastner (CDFG). Spring-run Chinook were also targeted with a bottom-set gill net that was 100' long and 10' deep with 8" stretch-mesh. It was constantly manned and pulled in as soon as a fish was detected in it. Fish were promptly removed from the net and processed. Any fish that were injured or appear too stressed were not tagged. Radio tags were inserted into the esophagus using a bolus gun. A Hallprint 10-cm plastic tipped dart tag was applied below the dorsal fin to monitor harvest rates and movement in the lower Feather River. After tagging, salmon were allowed to recover until they are capable of swimming away on their own. Fish movements were monitored using a combination of manual

8 * Actual Take Numbers:

Take is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." This does not include snorkel surveys or other strictly observational surveys, but does include dead fish that are handled, sampled, or retained.¹

Species	ESU/DPS	Adult Carcasses ^{/1}	Adult				Juvenile			
			Non-lethal	Lethal		Percent Unintentional Mortality ^{/4}	Non-lethal	Lethal		Percent Unintentional Mortality ^{/4}
				Intentional ^{/2}	Unintentional ^{/3}			Intentional ^{/2}	Unintentional ^{/3}	
coho salmon	Southern Oregon/Northern	0	0	0	0	#DIV/0!	0	0	0	#DIV/0!
Chinook salmon	Central Valley spring-run	0	44	0	1	2.2	0	0	0	#DIV/0!
	California Coastal	0	0	0	0	#DIV/0!	0	0	0	#DIV/0!
steelhead	Northern California	0	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	Central California Coast	0	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	South-Central California Coast	0	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	California Central Valley	0	10	0	0	0.0		0		#DIV/0!
green sturgeon ^{/5}	Southern DPS		0		0		0		0	

1. Example: carcasses handled/marked/sampled during carcass surveys.

2. Example: killing steelhead to obtain otoliths or other tissue.

3. Fish that are killed unintentionally during monitoring or research activity. Example: fish inadvertently killed as a result of electrofishing.

4. Number of lethal unintentional take divided by (nonlethal take + lethal unintentional take) x 100; calculated automatically.

5. Estimate the number of Southern DPS green sturgeon that were encountered during salmonid research projects ONLY. Although no 4(d) Rule has been established for the direct take of Southern DPS green sturgeon, this information is needed to assess the effects associated with salmonid research upon this fish.

9 * Please provide a summary of major findings (preliminary findings are sufficient if project is still ongoing).

Please also indicate whether the data you have collected will be archived, and if so, the location of the archive.

Spring-run Chinook study-

Between May and June 2007, 45 spring-run Chinook were tagged with radio tags. Of the 45 tags deployed, 40 were subsequently relocated. Five were recovered during the adult escapement survey, two were recovered at the Feather River Fish Hatchery and five were reported by anglers. While the fate of the remaining 28 fish is vague, some conjectures were made. Tag failure was possible for three tags that were not relocated after July 3rd. While it is possible these three fish were caught by anglers, it seems unlikely because they were last detected at the Fish Barrier Dam where fishing is not permitted. However, these three Chinook could have moved downstream into fishable areas before the next weekly manual tracking event could take place to detect them in new locations before they were harvested. One fish was likely harvested and not reported since its signal was last detected before the spawning season at a fishing hotspot. The remaining 24 signals were detected in known spawning areas (17 in the LFC; 7 in the HFC), but these tags were not found among any of the reachable salmon carcasses surveyed.

Fish were at liberty or last detected anywhere from 1-243 days after being tagged. The total gross distance traveled by tagged

Steelhead study-

Between April and May 2007 we captured 10 adult steelhead using hook and line. We surgically implanted acoustic transmitters

10 If your project was COMPLETED: please attach a copy of a final, comprehensive report, if available, or indicate below when you anticipate the final report will be completed.

A comprehensive report of the 2005, 2006 and 2007 spring-run Chinook telemetry data is anticipated for May 2008. The in-river steelhead study is ongoing and a comprehensive report will be written once the study is completed (date unknown).

11 * Describe what measures were utilized to minimize adverse effects upon listed salmon and steelhead, and the effectiveness of those measures.

At least one trained and qualified person with three years experience in sampling and handling anadromous salmonids was onsite throughout the duration of each processing event to insure adherence to approved sampling and handling protocols. To minimize injury, the bolus gun used to insert the tags in the Chinook was marked with a line indicating maximum insertion point to prevent rupturing the fish's stomach. While angling for steelhead, fish were landed as quickly as possible to prevent extra stress. Any fish that were too small (tag must weigh <4% body weight), injured, or appeared too stressed were not tagged. All fish tagged were released alive and in good condition.

12 * Describe any problems and/or unforeseen effects (e.g., fish injuries or mortalities) on salmon and steelhead that occurred during the project.

The gillnet only captured one Chinook likely due to the large mesh size. It was not tagged due to abrasions it received around the abdomen from the gear. While the fish did swim away of its own volition, it was considered in poor condition. This gear will not be used to target Chinook in future Chinook telemetry studies (but will be used for sturgeon).

13 * Describe post-handling mortality occurrences (if any) for salmon and steelhead, and indicate how post-handling mortality was estimated.

Manual tracking surveys showing variable movement (particularly upstream) for an individual fish's location was used to indicate whether it was alive. Carcasses were sought if fish showed no movement. It is possible that one Chinook salmon may have suffered mortality from the tagging process. It's carcass was located one week after tagging.

14 * Live fish counts from observational surveys:

Please report the number of **live** fish observed from snorkel surveys, spawning surveys, or other strictly observational surveys in this section, and indicate **survey method(s)**.

Species	ESU/DPS	Adult	Juvenile	Method(s)
coho salmon	Southern Oregon/Northern California Coasts			
Chinook salmon	Central Valley spring-run			
	California Coastal			
steelhead	Northern California			
	Central California Coast			
	South-Central California Coast			
	California Central Valley			
green sturgeon	Southern DPS /1			

1/ Estimate the number of Southern DPS green sturgeon that were observed during salmonid research projects ONLY.

15 Please include any additional findings, results, other information, or comments here.

HELP COLUMN

For clarification or additional help, please contact Sharon Shiba at (916) 324-3613; sshiba@dfg.ca.gov or Jeffrey Jahn at (707) 575-6097; Jeffrey.Jahn@NOAA.GOV.

Please refer to the attached file called **4dProgram2007ProjectsList.pdf** for your 2007 project number and title.

Your contact information is needed in case we should have questions regarding your report. Unless you are the sole researcher on the project, a second contact would be helpful in case we cannot reach you.

If you received your Section 10 Permit **before your 2007 sampling season began**, AND the permit completely replaces your project's 4(d) Authorization, your project is considered **NOT IMPLEMENTED** under the 4(d) Program. If your Section 10 Permit was received during mid-season, your project was partially covered under the 4(d) Program, thus take activity during this period must be reported here.

Please contact Sharon Shiba at (916) 324-3613 or sshiba@dfg.ca.gov if you would like to receive pdf files of HUC/DPS/ESU distribution maps. If there are multiple study sites, you may provide this information by attaching a Word or Excel file.

◀ **Caveat:** This cell will accept a maximum of 32,767 characters; only the first 1,024 characters are visible in this cell and the rest are viewable only from the title bar. **If this space is insufficient**, additional space is provided in Item 15, or you may submit your response as a MS Word document. **The file(s) may either be directly linked as OLEs or included as attachments to the e-mail** accompanying your completed application. If you opt for the latter method, please indicate the filename(s) in the cell in lieu of your response. Please click the worksheet tab "AttachOLEFilesHere" to see instructions re: creating OLE files.

Please indicate numbers of individuals **actually taken during Calendar Year 2007**, by table categories. The **Calendar Year period** was selected by NMFS; **please do not attempt to report take for any other time period.**

If your Section 10 Permit was received during **mid-season** AND the permit completely **replaces** your 4(d) coverage, **please report only the take that occurred while your project was covered under the 4(d) Program.**

Please see Caveat in Item 7 about cell capacity and alternative ways to provide the requested information.

Please see Caveat in Item 7 re: linking OLE files or e-mailing files as an attachment.

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You may use this space to continue responses to previous questions, or to provide additional information or comments. Please indicate the Item number if you use this space to supplement lengthy response(s).